LUK'YANOV, V.K.; FOKIN, A.G.

Geometrical effect in stripping reactions on deformed nuclei.
Izv. AN SSSR. Ser. fiz. 28 no.1:56-59 Ja '64. (MIRA 17:1)

1. Ob"yedinennyy institut yadernykh issledovaniy.

DZHAMALOV, O.B., doktor ekon. nauk; VOLOTKO, N.A.; YUN, D.N., kand. ekon. nauk; FOFONOV, B.M., kand. ekon. nauk; KALYAKIN, P.V., kand.ekon. nauk; DESYATCHIKOV, B.A., kand. ekon. nauk; KHUDKOVSKIY, A.B., kand. ekon. nauk; ARTYKOV, A., kand. ekon. nauk; FOKIN, A.I.; UL'MASOV, A., kand. ekon. nauk; YAKOVENKO, Ye., red.; BAKHTIYAROV, A., tekhn. red.

[Principles of the economics of Uzbekistan industry] Osnovy ekonomiki promyshlennosti Uzbekistana; uchebnoe posobie Tashkent, Gosizdat UzSSR, 1963. 282 p. (MIRA 17:1)

DESYATCHIKOV, B.A., kand. ekon. nauk; GABZAILOV, G.F., kand. ekon. nauk; KADYROV, Z., nauchn. sotr.; ABDUSHUKUROV, T.; KALYAKIN, P.V., kand. ekon. nauk; FOKIN, A.I., kand. ekon. nauk; BAKIYEVA, R.A., nauchn. sotr.; IBRAGIMOV, M., nauchn. sotr.; KARDASI, A.A., kand. ekon.nauk; KADANER, E.A.; NIKONOV, F.D., nauchn. sotr.; ANTONETS, G.M.; ARTYKOV, A.A., kand. ekon. nauk; TRUSOV, A.N.; OVCHAROVA, M.A., nauchn. sotr.; TSOY,P., nauchn. sotr.; KALYAKIN, P.V., kand. ekon. nauk, otv. red.; DZHAMALOV, O.B., doktor ekon. nauk, red.; ARTYKOV, A., kand. ekon. nauk, red.; DESYATCHIKOV, B.A., kand. ekon. nauk, red.; SHARIFKHODZHAYEV, M., kand. ekon. nauk, red.; DESYATNIK, F.M., red.; GOR'KOVAYA, Z.P., tekhn. red.

[Economics of the machinery manufacture of Uzbekistan] Ekonomika mashinostroeniia Uzbekistana. Tashkent, Izd-vo AN Uzb.SSR, 1963. 289 p. (MIRA 16:12)

1. Akademiya nauk Uzbekskoy SSR, Tashkent. Institut ekonomiki. (Uzbekistan--Machinery industry)

FOKIN, A.M.

Some character traits and scientific aspects of V.I.Vernadskii.
Och.po ist.geol.znan. no.11:7-20 '63. (MIRA 16:7)
(Vernadskii, Vladimir Ivanovich, 1863-1945)

FOKIN, A.M.; KUPARADZE, D.I.

Conditions governing the formation of secondary dispersion halos and stray fluxes as revealed by the study of the Dzamskoye iron ore deposit. Geol. sbor. [Kavk.] no.2:181-186 '62. (MIRA 17:1)

15-57-1-1048

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 1, p 167 (USSR)

AUTHORS: Fokin, A. M., Ramishvili, G. G.

TITLE: Soil Movements in Shida-Kakheti and the Role of Human Factors (**Fazy razvitiya opolzney v Shida-Kakheti i rol' antropogennogo faktora**)

PERIODICAL: Soobshch. AN GruzSSR, 1956, Vol 17, Nr 3, pp 213-217

ABSTRACT: In the region of Shida-Kakheti there occur strongly fractured argillaceous conglomerates and sandy clays of Miocene age, overlain by deluvial and loess-like sandy loams. Half the precipitation falls from April through June, strongly wetting the slopes. Three phases of soil movements are distinguished. The first belongs to the beginning of post-glacial time. The base level of these movements was the first terrace above the flood plain. These dislocations are in the

Card 1/3

Soil Movements in Shida-Kakheti (Cont.)

nature of huge surficial movements. Traces of them have been preserved as elongated stabilized flowage depressions with areas up to two square meters. The second phase, ancient soil movements, belongs to the period between the eleventh and the sixteenth centuries. The base level for these movements was the flood plain. The age of the dislocations has been established by indirect evidence: the thickness of stumps, indications of skeletal trees, and the smoothness of terraces and mounds. Remains of ancient settlements are preserved in the zone of these movements. Forests and other vegetation have been cut down on the slopes and the soil has been cultivated. These practices have led to activation of the soil movements. The third phase of movements belongs to the present epoch. The movements have been rejuvenated only in the lower slopes because of stream erosion. Those districts utilized by man have also been affected. Individual foci of movement have arisen through moistening of the slopes because of inefficient drainage nets or of excavating for the narrow-gauge railway of the Akhmeta lumber

Soil Movements in Shida-Kakheti (Cont.)

establishment. The authors conclude that in the second and third phases. the causes of the soil movements have been human activities. To fortify the slope, they recommend reforestation and strict regulation of irrigation systems.

Card 3/3 N. M. Ts.

MERABISHVILI, M.S., glavnyy red.; AVALIANI, G.A., red.; BAKRADZE, I.V., red.; DOLABERIDZE, L.D., red.; KAKABADZE, N.A., red.; KOMETIANI, G.A., red.; TVALCHRELIDZE, G.A., red.; TEGONIDZE, G.I., red.; FOKIN, A.M., red.; FILATOV, S.S., red.; EDILASHVILI, V.Ya., red.; BEREZOVSKAYA, L.I., red.izd-va; IVANOVA, A.G., tekhn.red.

[Yearbook of the Caucasus Institute of Raw Minerals for 1957] Ezhegodnik Kavkazskogo instituta mineral'nogo syr'ia za 1957 god. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geol. i okhrane nedr, 1959. 54 p. (MIRA 13:12)

1. Tiflis. Kavkazskiy institut mineral'nogo syr'ya.
(Caucasus--Mines and mineral resources)

FOKIN, A.M.

Erosion belts on the southern slope of the Greater Caucasus and their prospecting importance. Geol.sbor. [Kavk.] no.1: 125-131 '59. (MIRA 13:1)
(Caucasus--Erosion)

FOKIN, A.M.

Condenser for obtaining distilled water from industrial steam.
Sbor.rats.predl.vnedr.v proizv. no.5:55 '60. (MIRA 14:8)

1. Moskovskiy trubnyy zavod.
(Condensers (Steam))

FOKIN, A.N.

Evolution of the supergene zone in the Chu-Ili Mountains.
Min.syr'e no.4:69-74 '62. (MIRA 16:4)
(Chu-Ili Mountains--Weathering)

SOV/169-59-4-3476

Translation from: Referativnyy zhurnal, Geofizika, 1959, Nr 4, p 34 (USSR)

AUTHOR: Fokin, A.N.

TITLE: Using the IZh Device for Prospecting of Ore Deposits

PERIODICAL: Byul. nauchno-tekhn. inform. M-vo geol. i okhrany nedr SSSR, 1957, Nr 5 (10), pp 34 - 37

ABSTRACT: The IZh electric prospecting set may be used for discovering steeply dipping ore bodies of current-conducting and non-conducting character by the ratio-of-potentials method. This device is used successfully in areas of the difficulty classes I to V. It ensures a productivity of 1 km of electric profile per day when working with 5 m intervals. Having a weight of about 50 kg, the IZh set comprises a manually operated low frequency generator (80 - 100 cps) with an autotransformer producing a voltage of 50 - 400 v and a measuring bridge with an amplifier composed of 1K1P and 2P1P miniature tubes in the diagonal. The output is connected to headphones. The generator is connected to the AB feeder electrodes. A MON measuring set

Card 1/2

Using the IZh Device for Prospecting of Ore Deposits

with three electrodes is used for determining the emf amplitude ratios between the central and each of the outer electrodes. The geological structure of the section in question is judged according to the value of this ratio. An efficient pulse generator composed of a phanotron has been developed to substitute the manually operated generator. Experimental models of this generator have been produced. Copper or steel tubes of 0.75 m length are used as electrodes. Plugs made of cotton cloth, impregnated by copper sulfate, are used on mountain slopes with widely evolved large block diluvium. The peculiarities of using the set under different prospecting conditions are described.

M.V. Sokol'skiy

FOKIN, A.N.; SEMENOVA, G.A.; MILYAYEV, A.S.

Modern geological and geophysical methods of mapping weathering surfaces in prospecting for ore deposits as revealed by a study made in the arid-zone region. Kora vyvetr. no.6:272-282 '63. (MIRA 17:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya, Moskva.

FOKIN, A.P.; PLANOVSKIY, A.N.; AKOPYAN, L.A.

Studying mass transfer during the drying of high-moisture content products by means of atomizing in a uniflow apparatus. Plast. massy no.8:43-44 '64. (MIRA 17:12)

FOKIN, A.P.; PLANOVSKIY, A.N.; AKOPYAN, L.A.

Calculation of spray dryers with allowance for stirring. Inzh.-fiz. zhur. 8 no.1:116-118 Ja '65. (MIRA 18:3)

1. Institut khimicheskogo mashinostroyeniya, Moskva.

FOKIN, A.S.

Giant-size lipoma of the breast. Sov.med.21 Supplement:16 '57.
(MIRA 11:2)

1. Iz khirurgicheskoy kliniki Saratovskogo meditsinskogo instituta.
(BREAST--TUMOR)

Fokin, A.S.

BUKOV, V.A., BYKOV, L.A., VALUK, V.A., VARTBARONOV, R.A., ZHILIS, E.F., KONDRAKOV, V.M., KUZ'MIN, V.A., SYCHEV, G.I. FROLOV, N.I., FOKIN, A.S., KHARINSKIY, A.N. (Saratov)

New method for producing stable neurogenic hypertension in dogs [with summary in English]. Arkh.pat. 20 no.5:21-27 '58 (MIRA 11:6)
(HEART, anatomy and histology,
thebesian vessels, review (Rus))

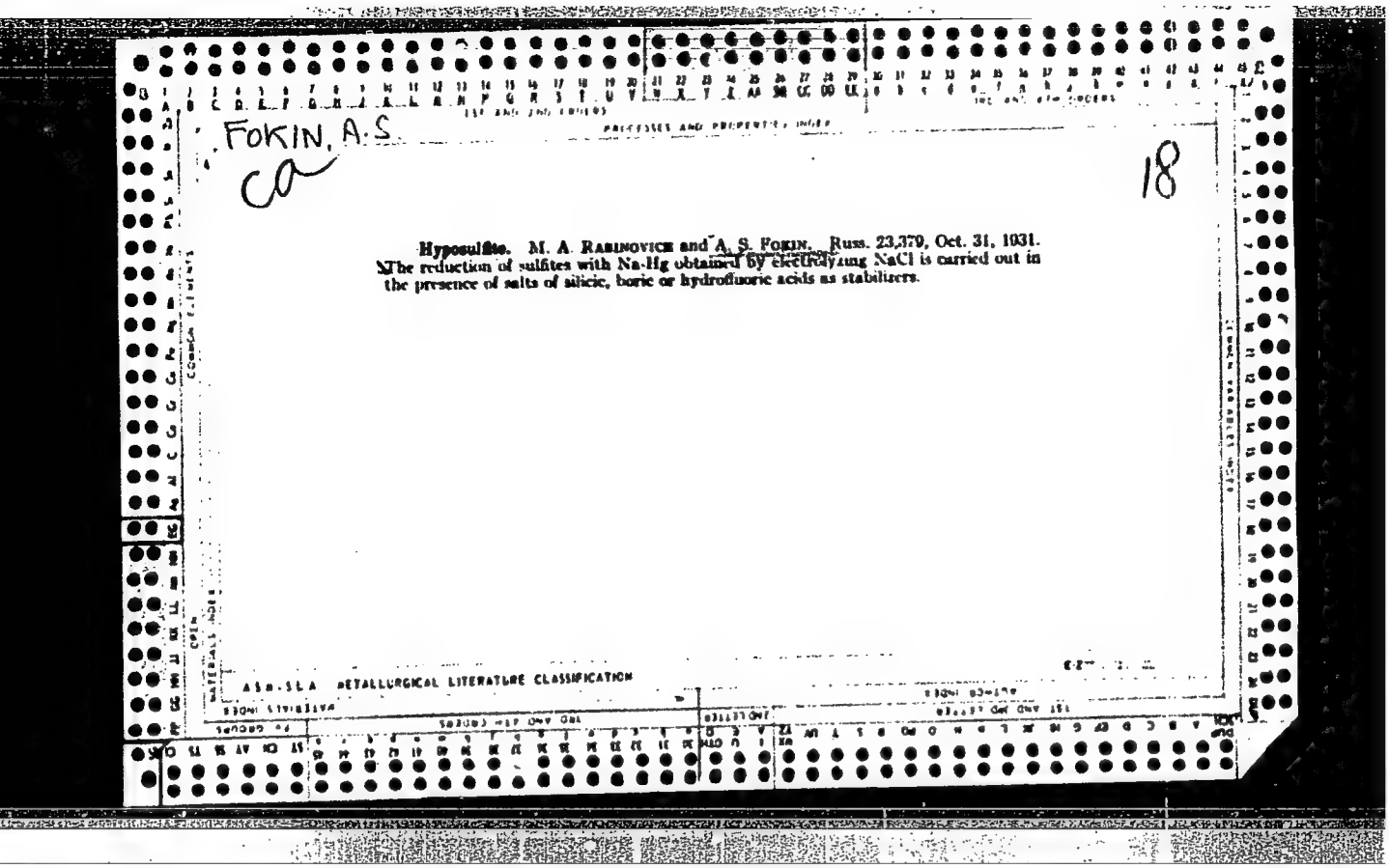
KLEIN, A. L.

Effect of large doses of insulin on the content of sodium, potassium, magnesium and total and ionized calcium in the blood serum. Zhur. nevr. i psikh. 64 no.11:1717-1721 '64.
(MIRA 18:6)

1. Kafedra patologicheskoy fiziologii (zaveduyushchiy - prof. N.T. Shutova) Leningradskogo pediatricheskogo meditsinskogo instituta.

FOKINA, M.K.; FOKIN, A.S.

Experience in converting a library's holdings to the Universal Decimal Classification. Opyt. rab. po tekh. inform. i prop. no.3:32-35 '63. (MIRA 16:12)

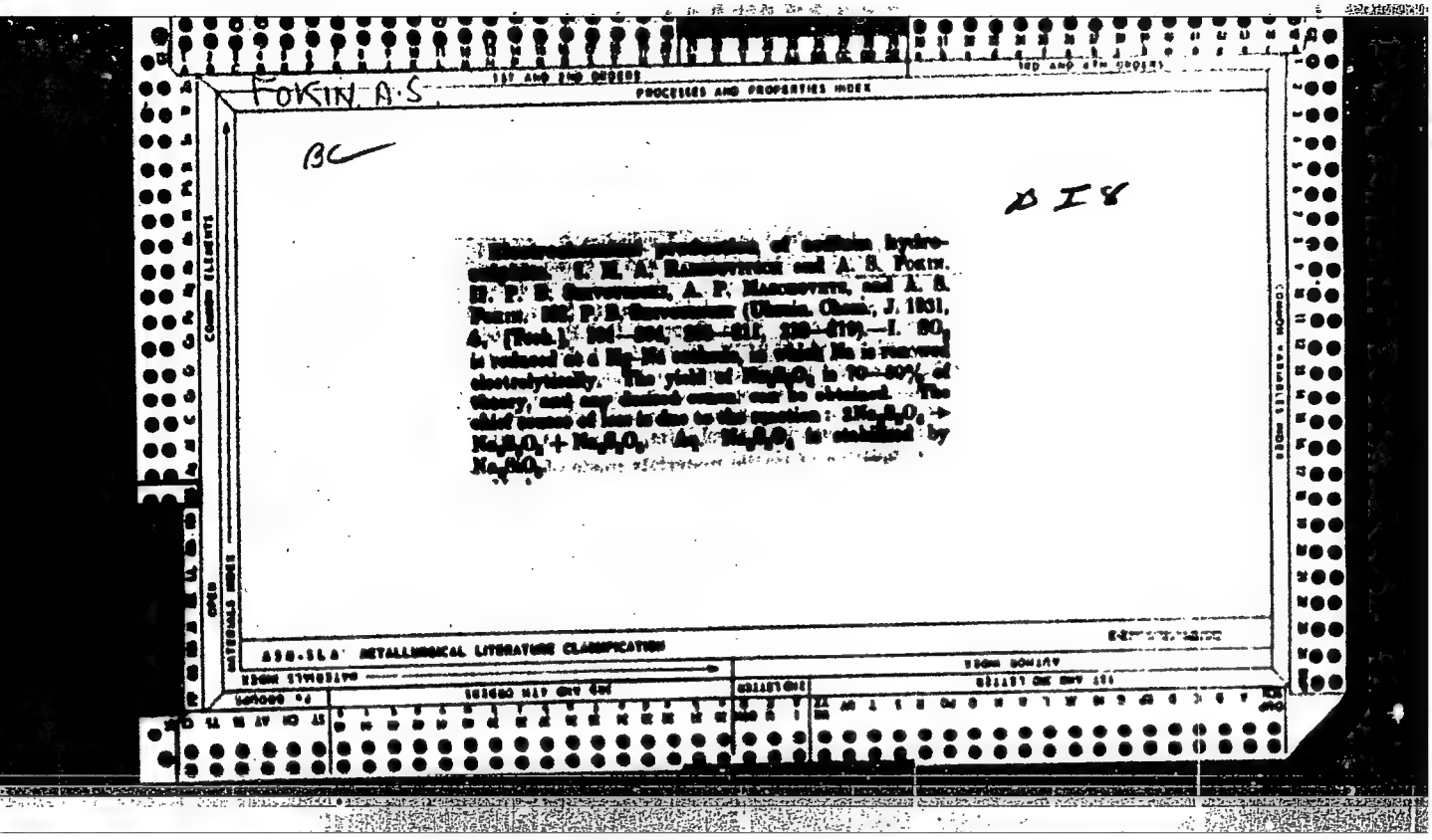


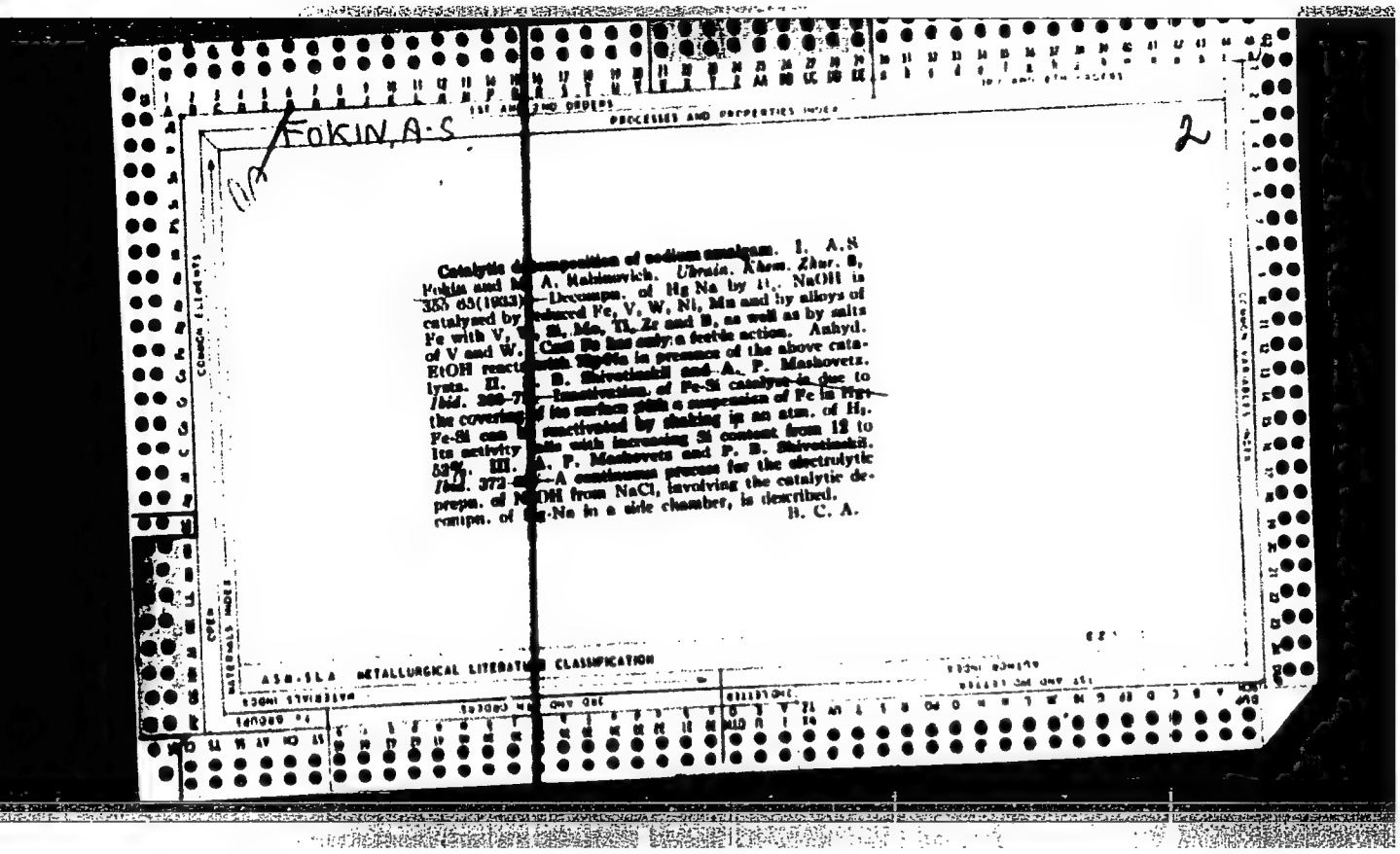
FOKIN, A.S.
ca

18

Hyposulfite. M. A. RABINOVICH and A. S. FOKIN. Russ. 23,379, Oct. 31, 1931. The reduction of sulfites with Na-Hg obtained by electrolyzing NaCl is carried out in the presence of salts of silicic, boric or hydrofluoric acids as stabilizers.

A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION





Fokin, A S.

USSR/Chemical Technology. Chemical Products and Their Application--Synthetic fibers. I-26

Abs Jour: Ref Zhur-Khimiya, No 3, 1957, 10083

Author : Fokin, A. S.
Inst : Kiev Technical Institute of the Light Industry
Title : The Viscosity of Concentrated Gelatin Solutions at Elevated Temperatures

Orig Pub: Tr. Kievsk. tekhnol, in-ta legkoy prom-sti, 1955, No 7, 33-43

Abstract: Gelatin solutions containing 15% protein at 40° have a structural viscosity determined by the space lattice formed by the anisodiametric protein molecules. The energy of formation of that lattice apparently is not very large. Samples of commercial gelatine and proteins extracted from leather wastes have been investigated. It has been established that solutions of proteins extracted by neutralization from chrome-tanning

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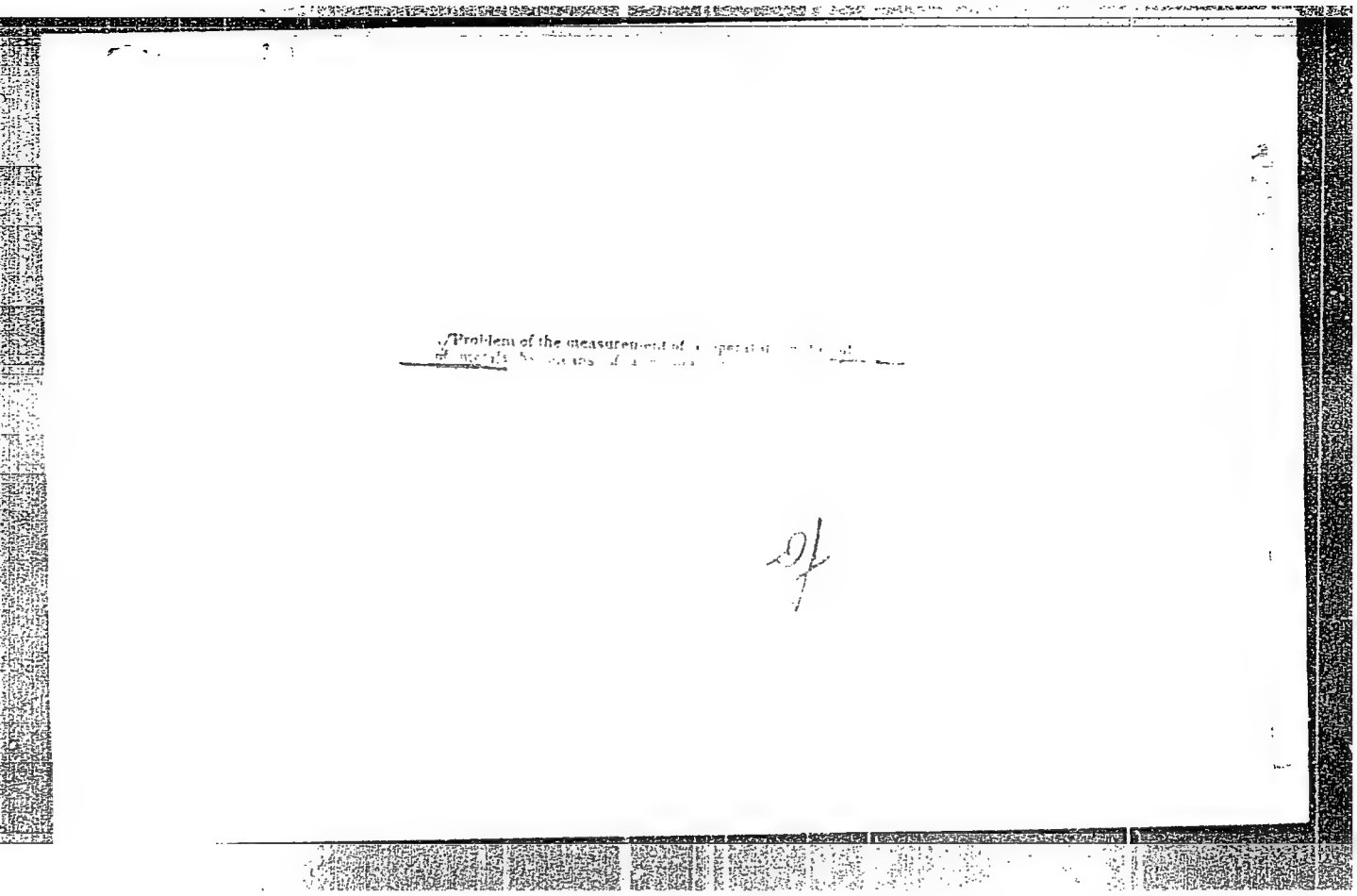

Problem of the measurement of

FOKIN, A. V.

FOKIN, A.V.: "Investigation of the movement of the comet Oterm 3, July 1942." Acad Sci USSR. Main Astronomical Observatory. Leningrad, 1956. (DISSERTATION For the Degree of Candidate in PHYSICOMATHEMATICAL SCIENCE.)

So: Knizhaya letopis', No. 24, 1956

FOKIN, A.V.

Orbit of Oterma's comet 3 (1942 VII) according to observations in 1943-1950. Biul. Inst. teor. astron. 7 no.2:89-112 '58.
(MIRA 13:3)

(Comet, Oterma's)

FOKIN, A.V.

Investigating the close approach of Oterma's comet 3 to Jupiter.
Biul. Inst. teor. astron. 7 no.2:113-119 '58. (MIRA 13:3)
(Comet, Oterma's) (Jupiter (Planet))

3(1)

AUTHOR: Fokin, A.V.

SOV/33-35-4-23/25

TITLE: An Investigation of the Movement of the Comet Oterma 3 1942 VII (Issledovaniye dvizheniya komety oterma 3 1942 VII)

PERIODICAL: Astronomicheskiy zhurnal,1958, Vol 35, Nr 4, pp 674-676(USSR)

ABSTRACT: The comet Oterma 3 discovered on April 3, 1943 approached Jupiter a short time before the discovery (1937-1939). The author uses 127 observations of the years 1943-1950 in order to set up the differential equations of the baricentric motion of the comet, in order to integrate them then with intervals of 20 days back to December 1939. Furthermore the author applied planetocentral coordinates. Thus it was stated that the comet moved in the radius of action of Jupiter from December 27, 1936 to December 15, 1938 and that before this time the orbit of the comet was totally between the orbits of Jupiter and of Saturn, and therefore it could not be observed. Near the Jupiter the orbit was completely changed. The next Jupiter contiguity will be in 1961.

An Investigation of the Movement of the Comet Oterma 3 1942 VII SOV/33-35-4-23/25

There are 2 tables, and 3 references, 1 of which is Soviet, and 2 American.

ASSOCIATION: Odesskoye vyssheye morekhodnoye uchilishche (Odessa Higher Navigation School)

SUBMITTED: March 14, 1957

Card 2/2

S/035/62/000/011/008/079
A001/A101

AUTHOR: Fokin, A. V.

TITLE: Ascending motion of a rocket in the gravity field

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 11, 1962, 10, abstract 11A77 ("Byull. In-ta teor. astron. AN SSSR", 1962, v. 8, no. 5, 335 - 342, English summary)

TEXT: The author considers the problem of the motion of a rocket, whose mass varies according to an exponential law, in the Earth's gravity field. The latter is assumed to be central and the rocket motion proceeding along the radius-vector. Air resistance is neglected. The equation of the rocket motion is integrated, and the solution is represented in terms of elliptic integrals of the first and second kind. The sequence of calculations by the formulae obtained is presented.

Yu. B.

[Abstracter's note: Complete translation]

Card 1/1

ACCESSION NR: AT4001203 S/2511/62/008/005/0335/0342

AUTHOR: Fokin, A. V.

TITLE: Ascending motion of rocket in a gravitational force field

SOURCE: AN SSSR. Inst. teor. astron. Byulleten', v. 8, no. 5, 1962, 335-342

TOPIC TAGS: material point, earth gravitational force, reactive acceleration, gravitational acceleration, rocket, Kabal'chiah number, variable mass point, rocket motion, earth gravitational field, gravitational force field, rocket ascent, elliptic integral

ABSTRACT: The ascending motion in the earth's gravitational field of a rocket whose mass varies exponentially is calculated without allowance for the resistance of the medium. This problem was solved originally by A. A. Kosodem'yanskiy (Uch. zap. MGU, 154, Mekhanika, 4) in terms of elementary functions. The present solution is in

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ACCESSION NR: AT4001203

terms of elliptic integrals of the first and second kind, and the availability of very accurate tables for these integrals makes the use of the elliptic solution as convenient as calculations with elementary functions. Orig. art. has: 52 formulas.

ASSOCIATION: Inst. Teor. Astron. AN SSSR (Institute of Theoretical Astronomy AN SSSR)

SUBMITTED: 22Apr61	DATE ACQ: 21Nov63	ENCL: 00
SUB CODE: GM, AS	NO REF SOV: 001	OTHER: 000

Card 2/2

FOR IN

PHASE I BOOK EXPLOITATION SOV/6488

Knunyants, Ivan Lyudvigovich, Academician, and Aleksandr Vasil'yevich Fokin, Professor

Pokoreniye nepristupnogo elementa (Conquest of an Inaccessible Element) Moscow, Izd-vo AN SSSR, 1963. 189 p. (Series: Akademiya nauk SSSR. Nauchno-populyarnaya seriya) Errata printed on inside of back cover. 25,000 copies printed.

Ed. of Publishing House: V. M. Tarasenko; Tech. Ed.: S. P. Golub'.

PURPOSE: This textbook is intended for chemists and engineers.

COVERAGE: The book covers the full range of fluorine chemistry and technology and is based on Soviet and Western sources. The text includes: properties of fluorocarbons; fluorinated hydrocarbons, e.g., fluorinated olefins which have high thermal stability and chemical resistance; esters of dibasic

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Conquest of an Inaccessible Element SOV/6488

perfluorocarboxylic acids which are used in the preparation of stable lubricants and in synthetic rubber; preparation, properties, and applications of fluorine-containing plastics [teflon, teflon-100, poly(vinylidene fluoride)]; their radiation polymerization; fluorine containing elastomers used in supersonic aircraft and jet engines; freons; and other applications. The fifth chapter is devoted to lubricants and hydraulic fluids with high thermal and oxidation stability, which can be used under severe conditions and in systems with aggressive media. It is noted that chlorofluorocarbon oils lower the friction coefficient of rubbing surfaces made of the same metal under heavy loads and at high temperatures. Certain Soviet oils, greases, and hydraulic fluids are also described. Tabulated data are given for: 4-F, 3-F, 3-OK, 10-OK, 20-F, Summer No.5, Winter No.8, UPI, Fluid No.12, manometric fluid, and balancing fluid. Only KS, UPI, and Summer No.5 are insoluble in ammonia and amines. In describing esters of dicarboxylic acids and fluorinated

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/3

Conquest of an Inaccessible Element SOV/6488

alcohols, the author mentions the applicability of such lubricants for submarines to avoid a detectable oil film on the water surface (the ONR research is quoted). Modern lubricants are already in use in jet engines and other engines working at high temperatures. The author points out the importance of fluorine compounds in rocketry, aviation, astronautics, atomic energy, and industry. The last chapter is devoted to fluorine organic compounds used for: the improvement of light fastness of dyes (benzotrifluoride, fluorobenzene, trifluoromethylbenzene); the preparation of chemotherapeutic compounds; and the preparation of a class of toxic compounds (fluoroacetates). These compounds belong to esters of the general type $F(CH_2)_n COOR$, fluoroalcohols, and fluoroacetamides with their derivatives. Fluorophosphates are mentioned as CW compounds (e.g., DFP-3, Sarin, Soman) which caused a change in anti-CW methods. No personalities are mentioned. There are no references.

Card 3/3

KNUNYANTS, I.L.; FOKIN, A.V.; KOSYREV, Yu.M.; SOROCHKIN, I.N.; FROSINA, K.V.

Nitration of perfluorobutadiene with nitrogen peroxide. Izv. AN SSSR Ser.khim. no.10:1772-1775 O '63. (MIRA 17:3)

FOKIN, A.V., kand. fiziko-matematicheskikh nauk dotsent; KONONENKO, V.V., inzh.

Simple method for the determination of mean indicated pressure by developed indicator diagrams. Izv. vys. ucheb. zav.; mashinostr. no.2:71-75 '64. (MIRA 17:5)

1. Odesskoye vysshoye inzhenerno-morskoye uchilishche.

FOKIN, A.V.; KRINETSKIY, I.I.

Some general problems of the invariance theory. Avtom. upr. i vych. tekh. no.6:175-182 '64. (MIRA 17:10)

L 21735-65 EWT(m)/EPF(c)/EPR/EWP(j) Pc-4/Pr-4/Ps-4 SSD(a)/RPL RM/WW

ACCESSION NR: AP4044703 S/0062/64/000/008/1425/1429

AUTHOR: Knunyants, I. L.; Dyatkin, B. L.; Fokin, A. V.; Komarov, V. A.

TITLE: Nitration of perfluoroisobutylene

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 8, 1964, 1425-1429

TOPIC TAGS: perfluoroisobutylene, nitration, nitrogen tetroxide reaction, [illegible] fluorobutylnitrite, perfluoroisobutyldinitrite, nitroperfluoro[illegible] bistrifluoromethylglycolic acid

ABSTRACT: Perfluoroisobutylene was heated with an equimolecular amount of [illegible] steel autoclave at 170-180C for 6-8 hours to attain nearly complete conversion. Nitroperfluoro-tert.-butyl nitrite (compound VI in the [illegible]), [illegible] 110-110C, and a fraction boiling 30-100C, apparently a mixture of perfluoroisobutyl-α,β-dinitrite, $(CF_3)_2C(ONO)CF_2ONO$, and its conversion products were obtained. Hydrolysis of the 30-100C fraction gave bistrifluoromethylglycolic acid (X) in 27% yield based on initial perfluoroisobutylene. Nitroperfluoro-

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L 21735-65

ACCESSION NR: AP4044703

[illegible] (IX) was obtained in 23% yield, based on initial perfluoroisobutylene, [illegible] of VI. No dinitro compound $(CF_3)_2C(NO_2)CFNO_2$ nor nitronitrite [illegible] $(CF_3)_2CF_2ONO$, nor products which could be obtained [illegible] were formed, contrary to earlier data by I. L. Knunyants and A. V. Fakin [illegible] 1035 (1956)). Orig. art. has: 7 equations and 10 formulae

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Organometallic Compounds, Academy of Sciences, SSSR)

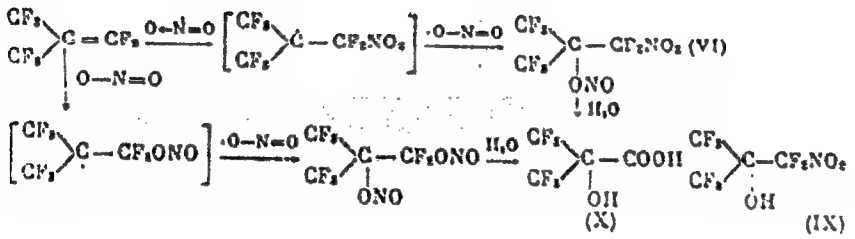
SUBMITTED: 28Dec62 ENCL: 01

SUB CODE: GC, MT NO REF SOV: 005 OTHER: 004

Card 2/3

L 21735-65

ACCESSION NR: AP4044703 ENCLOSURE: 01



Card 3/3

FOKIN, A.V.; KOMAROV, V.A.; SKLADNEV, A.A.; DAVYDOVA, S.M.

Reactivity of nitroperfluoroalkyl nitrites and products of their transformation. Part 1: Reaction of nitroperfluoroalkyl nitrites with hydrogen sulfide. Zhur. ob. khim. 35 no.9:1662-1664 S '65

Reactivity of nitroperfluoroalkyl nitrites and products of their transformation. Part 2: Reaction of nitroperfluoroalkyl nitrites with mercaptans. Ibid.:1664-1666 (MIRA 18:10)

L 32682-66 EWT(m)/EWP(j) RM/FDN/JW

ACC NR: AP6012527 SOURCE CODE: UR/0062/66/000/003/0466/0472

45
44
B

AUTHOR: Knunyants, I. L.; Fokin, A. V.; Komarov, V. A.

ORG: none

TITLE: Nitration of perfluoropropylene with nitrogen dioxide and investigation of nitration products

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 3, 1966, 466-472

TOPIC TAGS: nitration, organic chemistry, nitrogen oxide, fluorine compound, PROPYLENE

ABSTRACT: The present study is a continuation of work reported in *Dokl. AN SSSR*, III, 1035 (1956). The synthesized nitration products are given in the following table along with some of their properties:

UDC: 542.958.1 + 661.723-16

Card 1/3

L 32682-66

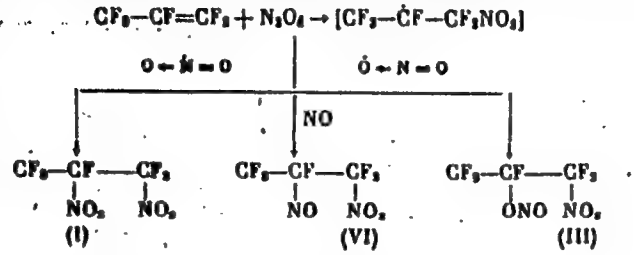
ACC NR: AP6012527

Formula	Boiling point °C (pressure, mm Hg)	d_4^{20}	n_D^{20}	Formula	Boiling point °C (pressure, mm Hg)	d_4^{20}	n_D^{20}
$CF_2(ONO_2)-CF(ONO_2)-CF_2$	57	1,637	1,3276	$CF_2(OH)-C(OC_2H_5)-CF_2NO_2$	118,5	1,391	1,3520
$CF_2(OH)-C(OH)-CF_2NO_2$	119—120	1,638	1,3560	$CF_2(CF_2NO_2)-C(=O)-O-CH_2$	68(44)	1,616	1,3621
$CF_2(=O)-C-CF_2NO_2$	32—33	1,5350	1,2955	CHF_2NO_2	42—43	1,4605	1,3158
$CF_2(OH)-C(Cl)-CF_2NO_2$	37	1,609	1,3500	$CF_2(NO_2)-CH(OH)-CH_2$	64—65(25)	1,390	1,3825
$CF_2(OH)-C(Br)-CF_2NO_2$	50	1,935	1,3758	$CF_2(NO_2)-CH_2-OH$	65(40)	1,4792	1,3780
$CF_2(OH)-C(CN)-CF_2NO_2$	64—65(20)	1,6282	1,3405	$CF_2(NO_2)-C(CH_3)(OH)-CH_3$	55(35)	1,2950	1,3015

During nitration of perfluoropropylene with nitrogen dioxide, nitroperfluoroisopropyl nitrile and dinitroperfluoropropane form. Hydrolysis of nitroperfluoroisopropyl nitrite produces nitroperfluoroacetone hydrate which upon dehydration produces anhydrous

Card 2/3

nitroperfluoroacetone. The chemical properties of nitroperfluoroacetone were investigated and some of its derivatives were synthesized. Nitroperfluoroacetone reacts with basic compounds to form difluoronitromethane and trifluoroacetic acid derivatives. The reaction of nitroperfluoroacetone with nitrosyl fluoride produces the same perfluoroisopropyl nitrite as that produced by heating of perfluoropropylene with nitrogen dioxide, which proves the structure of nitroperfluoroisopropyl nitrite according to the reaction



which corresponds to structure III. Orig. art. has: 1 table.

SUB CODE: 07/ SUBM DATE: 21Nov63/ ORIG REF: 005/ OTH REF: 005

cA FOKIN, A.V.

10

Addition of hydrogen sulfide to mercaptans and olefins
L. Kaunyants and A. V. Fokin. *Uspekhi Khim.* 19
345-84(1950). Crit. review; 135 references. N. Thon

1967

USSR/Chemistry - Plastics Jul/Aug 51

"Polymerization of Fluoroolefins," I.L.Knunyants, A.V.Fokin, Moscow

"Uspekh Khim" Vol XX, No 4, pp 410-429

Reviews on the basis of published papers the following subjects: tetrafluoroethylene, chlorotrifluoroethylene (perfluorochlorovinyl), vinylidene fluoride, 1,1-dichloro-2,2-difluoroethylene, vinyl fluoride, haloprenes, vinylfluoroacetates, fluoroacrylates, polyfluorostyrenes. The bulk of the information given is based on foreign publications. Refers to the following Russian work:

19172

USSR/Chemistry - Plastics (Contd) Jul/Aug 51

A.P.Borodin's synthesis of organic acid fluorides for the 1st time, A.M.Nesmeyanov's synthesis of formyl fluoride for the 1st time, A.I.Mashentsov's method of prepg acid fluorides by heating acid chlorides with potassium fluoride ("Zhur Obshch Khim" Vol XV, 1945, p 915).

19172

(CA 48 no.1: 397 '54)

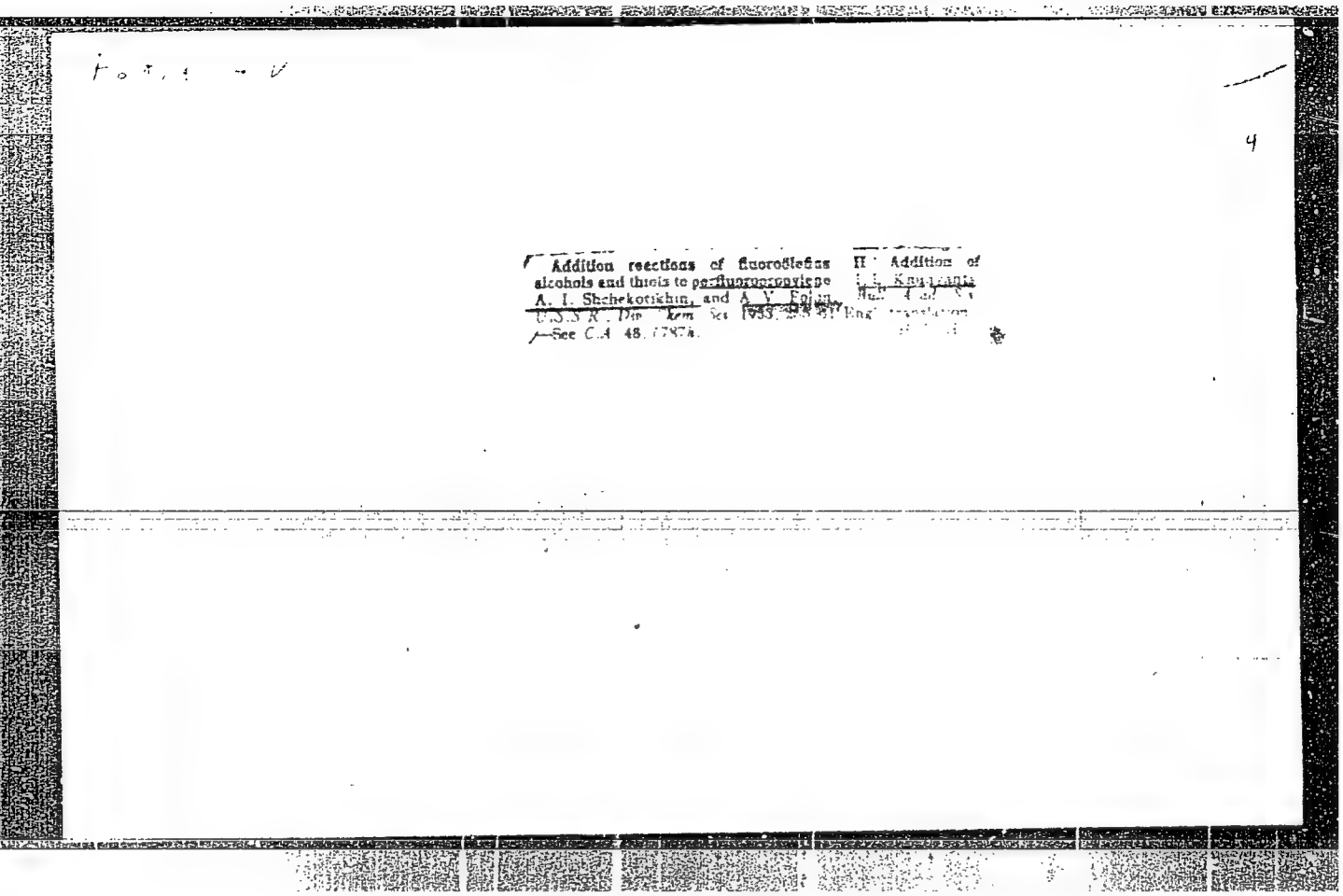
FOKIN, A. V.

19172

FOKIN, A. V.

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Organic Chemistry

Addition reactions of perfluoroolefins. I. L. Knunyants and A. V. Fokin. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1952, 279-83(Engl. translation).—See *C.A.* 47, 3221b. H. L. H.



Addition reactions of fluoroolefins alcohols and thiols to perfluoropropylene
A. I. Shchekotikhin, and A. V. Fokin
U.S.S.R. Div. Khim. Sci. 1955. p. 91 Eng. translation
See C.A. 48, 7787a.

II. Addition of
[illegible]

FOKIN, A.V., AND KNUNYANTS, I.L.

Addition Reactions of Perfluoroolefins, Izvestiya, Akademii Nauk SSSR, Otdeleniye Khimicheskikh Nauk, No. 2, 1952, pp 261-267.

FOKIN, A.V.

112

Addition reactions of fluoroolefins. II. Addition of alcohols and thiols to perfluoropropylene. I. L. Knunyants, A. I. Shchekotikhin, and A. V. Fokin. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1953, 282-9; cf. *C.A.*, 47, 3221*b*.—In the presence of alkali, perfluoropropylene (I) readily adds ROH and RSH with the H atom adding to the central C atom of I, contrary to the reaction with C_3H_6. Heating 15 g. I, 3 g. MeOH, and 0.7 g. powd. KOH in a stainless-steel autoclave 13 hrs. at 80° gave 16.1 g. product, b. 44–53°, which, treated with ice cooling with Br until the reaction ceased, and distd., gave 83% pure CF_2CHFCF_2OMe (II), b. 54–5°, d_{20} 1.420, n_D^{20} 1.2850; a small amt. of $CF_2BrCBrFCF_2OMe$, b. 136°, d_{20} 1.900, n_D^{20} 1.3700, was isolated from the high-boiling residue. Similarly a 14-hr reaction at 50–60° with EtOH gave 79.3% CF_2CHFCF_2OEt, b. 64–5°, d_{20} 1.299, n_D^{20} 1.2960. PrOH gave CF_2CHFCF_2OPr, b. 92–3°, d_{20} 1.290, n_D^{20} 1.3110. iso-PrOH after 20 hrs. gave 17.1% $CF_2CHFCF_2OCHMe_2$, b. 76°, d_{20} 1.280, n_D^{20} 1.3220. BuOH in an 18-hr. reaction gave 34% CF_2CHFCF_2OBu, b. 108°, d_{20} 1.270, n_D^{20} 1.3390. PhOH in a 10-hr. reaction gave 44.7% CF_2CHFCF_2OPh, b_{10} 95°, d_{20} 1.371, n_D^{20} 1.3905. Heating in a steel autoclave 11.8 g. II, 10 g. concd. H_2SO_4, and 2.2 g. powd. glass (to bind the HF) 3 hrs. at 90–5° and quenching in H_2O gave 65.6% CF_2CFHCO_2Me, b. 96°, d_{20} 1.353, n_D^{20} 1.3102. Similarly was obtained 59.4% *Et ester*, b. 108–9°, d_{20} 1.259, n_D^{20} 1.3260. Heating 33 g. I, 10.5 g. MeSH, and 1 g. powd. NaOH in an autoclave 6 hrs. at 120–40° gave 7.5 g. CF_2CHFCF_2SMe, b. 87°, d_{20} 1.380, n_D^{20} 1.3443; 12.5 g. EtSH gave 34% (17 g.) CF_2CHFCF_2SEt, b. 100–1°, d_{20} 1.322, n_D^{20} 1.3543; distn. of the residue gave an unstated low yield of a *disulfide*, $C_4F_8S_2H_2$, b_{10} 80–90°, d_{20} 1.391, n_D^{20} 1.4045. The formation of disulfides of the type $RSCF_2CHFCF_2SR$ can be explained by the attack of SR ion on I with evolution of HF and formation of allylic $CF_2{:}CFCF_2SR$, which then adds the 2nd mole of RSH. The formation of allylic by-products is confirmed by the bromination reaction cited above in the ROH series; it is regarded not as direct substitution of F in CF_2 but as a

(over)

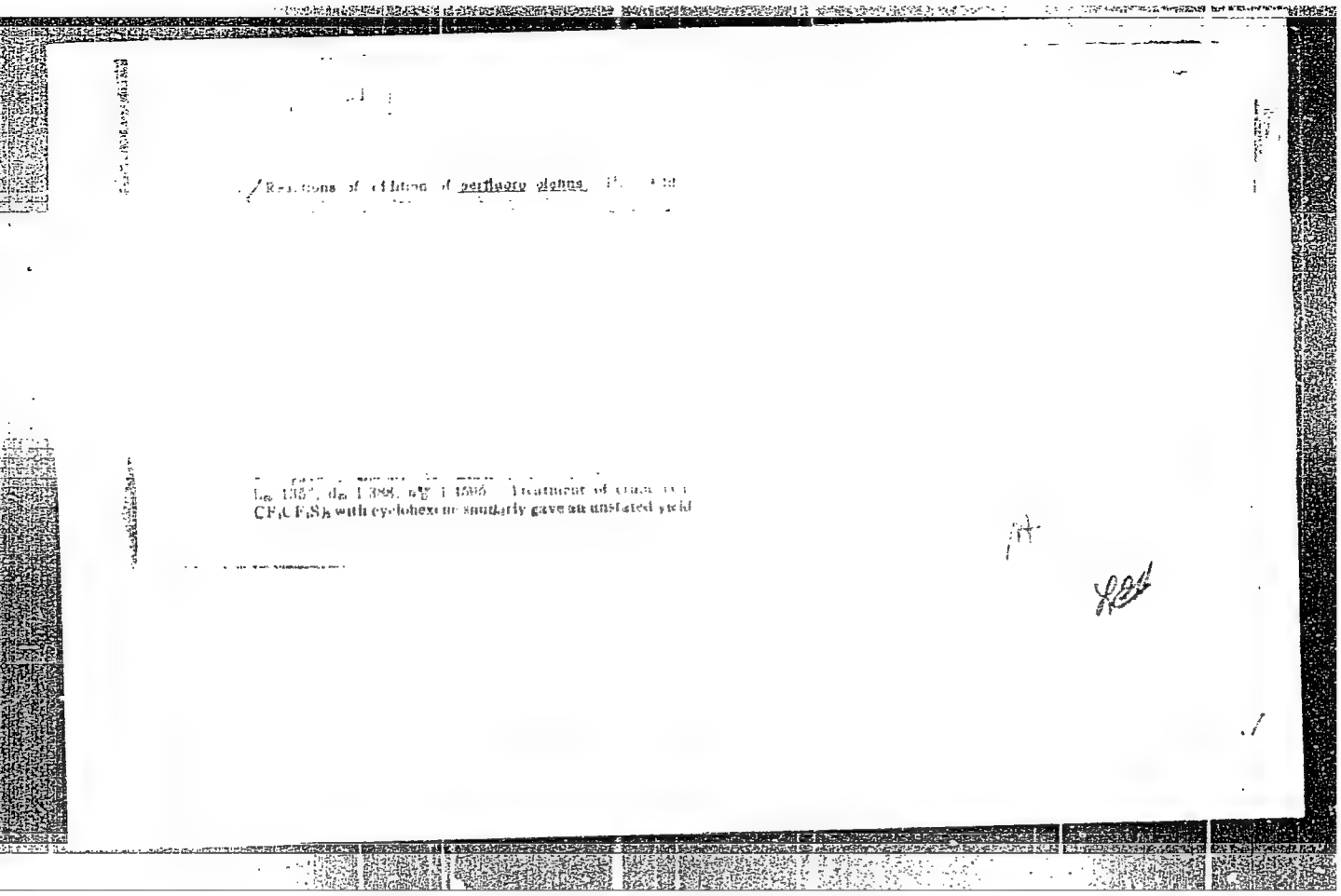
4

(3)

2/2 I. L. Knunyants, A. F. Shchekotikhin, V. A. V. Fokin

result of anionoid attack by the nucleophilic reagent on the terminal C atom of I having the least electron density, with the shift of unsatn. and elimination of one F ion, as an anion. Heating 10 g. $HOCH_2CH_2SH$, 20 g. I, and 0.8 g. powd. NaOH in an autoclave 6 hrs. at 100–20° similarly gave 20.5% $CF_2CHFCF_2SCH_2CH_2OH$, b_5 53–4°, d_{20} 1.546, n_D^{20} 1.3835. Heating 10 g. Et_2NH, 20 g. I, and 1 g. borax similarly 4 hrs. at 90° treating the mixt. with H_2O gave an unstated yield of $CF_2CHFCONEt_2$, b_{28} 89°, d_{20} 1.228, n_D^{20} 1.3910; presumably the initial product was an unstable $CF_2CHFCF_2NEt_2$.

G. M. Kosolapoff



Reactions of olefins of perfluoro alkanes

$CF_3CF_2S_2$ with cyclohexene smoothly gave an unstated yield

KNUNYANTS, I.L., akademik; FOKIN, A.V.

Fluorine and its compounds. Priroda 44 no.8:3-19 Ag '55.
(Fluorine) (MLRA 8:10)

Translation D 492394

FOKIN, A.V.

USSR/Organic Chemistry. Synthetic Organic Chemistry. G-2

Abs Jour: Referat Zhur-Khimiya, No 4, 1958, 11392.

Author : Knunyants, I. L. and Fokin, A. V.
Inst : Academy of Sciences USSR
Title : The Nitration of Perfluoroolefins by Nitrogen Dioxide

Orig Pub: Doklady Akad Nauk SSSR, 111, No 5, 1035-1038 (1956)

Abstract: The reaction of N_2O_4 with perfluoroolefins proceeds by a free radical mechanism and leads to the formation of dinitroperfluoroalkanes and β-nitroperfluoroalkylnitrites; the overall yield is 90%. The reactivity of the perfluoroolefins decreases from left to right in the following series $CF_2=CF_2$ (I) > $CF_3CF=CF_2$ (II) > $CF_2CF=CFCF_2$ (III) > $(CF_3)_2C=CF_2$ (IV). I in CCl_4, $CHCl_3$, CCl_2F_2, or $CClF_2CClF_2$ at 20° (in the absence of a solvent the reaction proceeds explosively)

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APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000413410015-2

USSR/Organic Chemistry. Synthetic Organic Chemistry. G-2

Abs Jour: Referat Zhur-Khimiya, No 4, 1958, 11392.

gives equal amounts of $CF_2(NO_2)CF_2NO_2$ (throughout this abstract the characteristics of the products are given in the order bp in °C, $n^{20}D$, and d_4^{20}), 57-58, 1.3249, 1.622 and $CF_2(NO_2)CF_2ONO$, 17, 1.3002 (0°), 1.5310 (0°). The nitration of II at 100° in the absence of a solvent gives $CF_3CF(NO_2)CF_2NO_2$ (in insignificant amounts), 76, 1.3141, 1.6313 and, as the main product, $CF_3CF(NO_2)CF_2ONO$ (V), 57, 1.3276, 1.637. The reaction of III with N_2O_4 proceeds only in a narrow temperature range (130-160°) and leads to the formation of $CF_2CF(NO_2)CF(NO_2)CF_2$, 62°/100 mm, 1.3640, 1.7721, and $CF_2CF(ONO)CF(ONO)CF_2$, 20, -, 1.5481. IV reacts with N_2O_4 at 180° giving (equal amounts) $(CF_3)_2C(NO_2)CF_2NO_2$, 92, 1.3212, 1.660, and $(CF_3)_2C(NO_2)$-CF ONO (VI), 48, 1.2870, 1.598. The structure

Card : 2/3

Fokin, A.V.

AUTHORS: Knunyants, I.L., Fokin, A.V. 62-12-3/20

TITLE: Nitration of Fluorine Olefines by Nitrogen Dioxyde (Nitrovaniye ftorolefinov dvuokis'yu azota). Lecture Delivered at the Meeting of the Department of Chemical Sciences AN USSR on October 30, 1957 (Doklad na sessii Otdeleniya khimicheskikh nauk Akademii nauk SSSR 30 oktyabrya 1957 g).

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1957, Nr 12, pp. 1439-1451 (USSR)

ABSTRACT: The reactions of the nitration of saturated and unsaturated hydrocarbons, which have already been thoroughly investigated, were practically not investigated at all in fluorine-organic compounds. The majority of the reaction of fluorine olefines with "nucleophylic" reagents has ionic character. In contrast to the smooth interaction of perfluorine-olefines with nucleophylic reagents, their interaction with electrophylic substances takes place under much more difficult conditions. According to Koffman (1949) and Khastsel'din (1953) only dinitroalkanes are formed by the interaction of tetrafluorine ethylene and chlorine trifluorineethylene with nitrogen dioxide. Reactions with other fluorine olefines were not investigated. Among other things, the authors found that these reactions

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depend mainly on the structure of the characteristic features of fluorine olefine (and lead to the formation of new and interesting substances). It was further shown that tetrafluorine-ethylene reacts explosively with nitrogen dioxide. It was possible to extend the method of nitration by means of nitrogen-dioxide also to other perfluorine olefines (see tables). In the case of none of the methods investigated were compounds able to form. It was shown that the destruction of β-nitroperfluorine-ethyl and γ-nitroperfluorpropylnitrites begins only at a temperature of more than 250°. The investigation of the nitration of chlorine fluorine olefines made it possible to determine a certain characteristic feature of this reaction (see formulae on page 1446.) The investigation of the nitration reactions of fluorine olefines and not substituted olefines with nitrogen-dioxide made it apparent that there is a similarity of the chemical character of these reactions (see table 2). The results of this investigation further showed that the stability of intermediate radicals as well as the polarity of fluorine olefines and that of the radical-like particle NO_2 are an important factor

Nitration of Fluorine Olefines by Nitrogen Dioxyde.
Lecture Delivered at the Meeting of the Department
of Chemical Sciences AN USSR on October 30, 1957

62-12-3/20

of orientation of the reacting components. Conceptions concerning the polarity of radicals, which were first published by Uoters (Waters?) and were further developed by Karash, Veys, Dolgopolov and others, deserve attention. There are 2 tables and 18 references, 10 of which are Slavic.

SUBMITTED: October 9, 1957

AVAILABLE: Library of Congress

Card 3/3

1. Chemical engineering-Conference 2. Hydrocarbon-Reactions
3. Fluorine-Organic compounds 4. Fluorine olefines

FEKIN, A.V

Nitroperfluoroalkyl [illegible]

$O_2NCF_2CH_2I$, b_{10} [illegible], b. 119°, 1.6538, 1.3460; [illegible] —; $CF_2CF(NO_2)\cdot CF_2ONO_2$, b [illegible]; $O_2NCF(CF_3)CONH_2$, b_{11} 154°, [illegible] $CF(NO_2)CO_2Et$, b. 117.5°, 1.413, 1.3470 [illegible] b_{18} 53°, 1.3790, 1.3567, O_2NCF_2COCl, b [illegible] 1.3581; $(O_2NCF_2CO)_2O$, b_{18} 63°, 1.4820, 1.3500, [illegible] CN, b. 27°, 1.4010, 1.3220; $(CF_2)_3C(NO_2)CO_2CH_3$, b 134°, 1.441, 1.3362; $CF_2CF(NO_2)COCl$, b [illegible] 1.3502; $CF_2CF(NO_2)CONEt_2$, b 149°, [illegible] $O_2N(CF_2)_4NO_2$, b_{10} 110°, 1.703, 1.3410, H_2N [illegible] $CONH_2$, —, —, — (in. 250°). Dissocn. const. [illegible] CO_2H is 97,000 × 10^{-6}; that of $CF_2CF(NO_2)CO_2H$ II [illegible] 1875 × 10^{-6}. The metallic salts of the acids [illegible] II Ag salt decomp. to the salt of perfluoro[illegible] Attempts to prep. $CF_2CF(NO_2)CN$ gave instead [illegible] Nitration of perfluorocyclobutane yields [illegible] ucts some *perfluorocyclobutanediol* [illegible] *C.A.* 51, 9472*i*, which hydrolyzes to [illegible] acid; treatment with NH_3 yields the amide [illegible] ment with alks. yields esters. [illegible] M. K.

FOKIN, A. V.

"Prospects of Using Fission Product Source Radiation in Radiation Chemistry", by N. V. Zimakov, E. V. Volkova, A. V. Fokin, V. V. Kulichenko, V. G. Vereskunov, A. G. Bykov, and N. I. Bogdanov

Report presented at 2nd UN Atoms-for-Peace Conference, Geneva, 9-13 Sept 1958

FOKIN, A-V

AUTHOR: None given

62-58-4-30/32

TITLE: Anniversary Session of the Department for Chemical Sciences of the AS USSR on October 30 and 31, 1957, and General Meeting of the Department for Chemical Sciences on December 19 and 20, 1957 (Yubileynaya sessiya otdeleniya khimicheskikh nauk Akademii nauk SSSR ot 30-31 oktyabrya 1957 g. i obshcheye sobraniye otdeleniya khimicheskikh nauk 19-20 dekabrya 1957 g.)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Khimicheskikh Nauk, 1958, Nr 4, pp. 521 - 524 (USSR)

ABSTRACT: On the occasion of the 40th anniversary of the October Revolution a reunion meeting of the Department for Chemical Sciences of the AS USSR took place. In his opening speech N. N. Semenov pointed out the outstanding succes of the USSR in the field of sciences especially in that of chemistry. Scientific lectures of the sessions were held by the following scientists, as was mentioned already earlier: Knunyants, Member, Academy of Sciences, and A. V. Fokin on the "Nitration of Fluorofines", A. L. Midzhoyan, Member, AS Armenian SSR,

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Anniversary Session of the Department for Chemical Sciences of the AS USSR on October 30 and 31, 1957, and General Meeting of the Department for Chemical Sciences on December 19 and 20, 1957.

on the "Investigations in the Field of the Synthesis of Physiologically Active Compounds", R. Kh. Freydlina, Doctor of Chemical Sciences, reported on the "Investigation of the Telomerization Reaction and the Reaction of the Synthesis on the Basis of Telomers"(Reference 2). B. A. Dolgoplosk, Doctor of Chemical Sciences, spoke on the "Generation of Free Radicals in Solutions and Their Reactions in Model Systems," A. M. Frumkin, Member of the Academy of Sciences, reported on "Some General Problems of Electrochemical Kinetics and the Theory of Ion Reactions"(Reference 4), A. V. Kiselev, Doctor of Chemical Sciences (Reference 5) spoke on "Some Problems of Adsorption Theory", N. M. Emanuel'(Reference 6), Doctor of Chemical Sciences, reported on "New Problems in the Field of Chain Reactions", V. L. Tal'roze, Candidate of Chemical Sciences, spoke on mass-spectroscopic investigations of ion-and radical reactions, A. P. Rebinder, Member,

Anniversary Session of the Department for Chemical Sciences of the AS USSR on October 30 and 31, 1957, and General Meeting of the Department for Chemical Sciences **On** December 19 **and** 20, 1957

Academy of Sciences, drew conclusions with regard to the development of physico-chemical mechanics(Reference 7). I. V. Tananayev, Corresponding Member of the AS USSR, gave new data on the chemistry of some rare elements, D. I. Ryabchikov and others spoke on the "Problems of the Chemistry of Rare Earth Elements"; the final lecture was that of V. A. Sokolov, Doctor of Chemical Sciences,on the "Calorimetric Measurements at High Temperatures".

General Regular Meeting of the Department for Chemistry of the AS USSR (December 19 - 20,1957):A. I. Brodskiy,Corresponding Member, AS USSR,spoke on the "Investigation of Some Reactions of Peroxides and Peracids of Hydrogen by Means of the Isotopic Method",M. M. Shemyakin, Corresponding Member, AS USSR, spoke on the "Use of N^{15} for the Explanation of the Mechanism of Some Organic Reactions", O. A. Reutov,Doctor of Chemical Sciences,reported on the "Investigation of the

62-58-4-30/32

Anniversary Session of the Department for Chemical Sciences of the AS USSR on October 30 and 31,1957,and General Meeting of the Department for Chemical Sciences **On** December 19 **and** 20,1957

Electrophil and Homolytical Reactions of the Substitution in the Carbon Atom by Means of the Method of Isotope Exchange",I. P. Alimarin,Corresponding Member,AS USSR, reported on new methods of determination of the division of rare elements using organic derivative sulfuric-,selenic- and telluric acids, V. G. Levich, Doctor of Chemical Sciences, reported on the "Diffusion Kinetics of Heterogenous Chemical Reactions in mobile Liquids".There are 8 references,**all** of which are Soviet.

AVAILABLE: Library of Congress

1. Chemical industry—USSR

Card 4/4

FOKIN, A.V.; VOLKOVA, Ye.V.; SOROKIN, A.D.

Utilization of energy of ionizing radiations in the process of polymerization of trifluoroethylene. Polymerization of trifluoroethylene in block and in the medium of chlorine-containsolvents. Khim.nauka i prom. 4 no.6:806-807 '59. (MIRA 13:8)
(Ethylene)
(Polymerization)
(Gamma rays)

81139
S/064/60/000/03/02/022
B010/B008

5.3600

AUTHORS: Fokin, A. V., Doctor of Chemical Sciences,
Kosyrev, Yu. M., Candidate of Technical Sciences

TITLE: Pyrolysis of Carbon Fluorides

PERIODICAL: Khimicheskaya promyshlennost', 1960, No. 3, pp. 186-192

TEXT: The pyrolysis of poly-tetrafluoroethylene at atmospheric pressure as well as in vacuum (1 torr) was studied in an apparatus (Figs. 1,2) designed for the pyrolysis of solid substances. Diagrams (Figs. 3,4) illustrate the change of the composition of the pyrolyzate with the pyrolysis temperature. The composition of the pyrolyzate obtained at atmospheric pressure is given in Table 1 and that of the product obtained in vacuum in Table 2. The range of 600-750°C proved to be most favorable for atmospheric pressure, a maximum yield of perfluorocyclobutane (>57%) being obtained at 600°C, of perfluoropropylene (45%) at 700-710°C, and of perfluoroisobutylene (33%) at 750°C. The pyrolysis of perfluorocyclobutane was studied in the steel tube (steel of the grade [illegible]92Z6 (NT5Kh92Z6)) of a device used for the pyrolysis of gaseous carbon fluorides at contact

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Pyrolysis of Carbon Fluorides

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times of 30 sec. and temperatures of 650-800°C. It was established that this pyrolysis is very similar to that of poly-tetrafluoroethylene, and that perfluorocyclobutane can thus also be used for the production of perfluoropropylene and perfluoroisobutylene by pyrolysis. Studies of the pyrolysis of tetrafluoroethylene showed analogous temperature dependences of the process and, thus, also of the reaction mechanism of the pyrolysis of perfluorocyclobutane and poly-tetrafluoroisobutylene (Table 3). Further experiments showed that the production of perfluoroisobutylene by pyrolysis of perfluoropropylene takes place best at a contact duration of 70 sec. and a temperature of 700-710°C (Fig. 7). Experiments on perfluoroisobutylene pyrolysis showed (Table 4) that the latter is the most heat-resistant fluoro olefine. The transformations of the compounds under consideration are schematically shown in Fig. 8 on the basis of the experimental results obtained, and the authors point out that the remains of poly-tetrafluoroethylene production can be used for the production of perfluoropropylene and perfluoroisobutylene. There are 8 figures, 4 tables, and 8 references: 3 Soviet, 1 Canadian, 1 British, and 2 American.

82356

S/063/60/005/001/009/009

5.3831

AUTHORS: Fokin, A. V., Volkova, Ye. V., Sorokin, A. D.

TITLE: On the Use of the Energy of Ionizing Radiation in the Process of Copolymerization of Trifluorochloroethylene With Various Monomers

PERIODICAL: Zhurnal vsesoyuznogo khimicheskogo obshchestva im. D. I. Mendeleyeva, 1960, Vol. 5, No. 1, p. 120

TEXT: The possibility was shown of radiation copolymerization of trifluorochloroethylene with various perfluorinated and partially fluorinated olefines and also with ethylene oxide. Vinylidenefluoride, perfluoropropylene, tetrafluoroethylene and ethylene oxide were used as second components in the copolymerization under the action of γ-radiation. The experiments were carried out at room temperature in metal ampoules made of ЭЯ-1Т (EYa-1T) stainless steel. The copolymerization of trifluorochloroethylene with vinylidenefluoride was carried out in the molar ratio $CF_2 = CFCl$: $CH_2 = CF_2$ from 3 : 1 to 1 : 3 at a dose intensity of 14-16 r/sec and a dose of 2-3 million r. Under these conditions practically the complete conversion of both monomers is obtained. The radiation-chemical yield is 3-5,000 molecules per 100 ev. The copolymer obtained is sufficiently resistant against alcohols, various oils and nitric acid; it is

Card 1/2

82356

S/063/60/005/001/009/009/

On the Use of the Energy of Ionizing Radiation in the Process of Copolymerization of Trifluorochloroethylene With Various Monomers

soluble in diethyl ether, acetone and esters. The copolymers of trifluorochloroethylene with perfluoropropylene, trifluorochloroethylene with tetrafluoroethylene and the polymer of vinylidenefluoride were obtained under analogous conditions. A copolymer of trifluorochloroethylene with ethylene oxide was obtained under the action of γ-radiation of Co^{60}. There are 3 tables and 3 references: 2 Soviet and 1 American.

SUBMITTED: September 30, 1959.

Card 2/2

PETROV, K.A.; SHEVCHENKO, V.B.; TIMOSHEV, V.G.; MAKLYAYEV, F.A.; FOKIN, A.V.; RODIONOV, A.V.; BALANDINA, V.V.; YEL'KINA, A.V.; NAGNIBEDA, Z.I.; VOLKOVA, A.A.

Alkyl phosphonates, diphosphonates, and phosphine oxides as extracting agents. Zhur.neorg.khim. 5 no.2:498-502 F '60. (MIRA 13:6)

(Phosphonic acid) (Phosphine oxide)
(Extraction(Chemistry))

35437

S/081/62/000/004/074/087
B138/B110

112214

AUTHORS: Zimakov, P. V., Volkova, Ye. V., Fokin, A. V., Sorokin, A. D., Belikov, V. M.

TITLE: Use of nuclear radiation energy in the process of the polymerization of fluoro-olefines

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 4, 1962, 557, abstract 4P24 (Sb. "Radioakt. izotopy i yadern. izlucheniya v nar. kh-ve SSSR, v. 1. M.", Gostoptekhizdat, 1961, 219-226)

TEXT: The processes of the separate and combined radiation polymerization of tetrafluorethylene and trifluorchlorethylene have been investigated with the aim of eliminating some of the deficiencies in existing methods of fluoro-olefine polymerization. It has been found that tetrafluorethylene and trifluorchlorethylene can easily be polymerized under various temperature conditions and mediums with comparatively low radiation intensities. The resulting polymers have a high degree of purity. The possibility of producing various fluoro-copolymers by radiation is demonstrated. Both radiation polymerization and radiation vulcanization might be carried out in the case of fluor-containing rubbers. [Abstracter's note: Complete translation.]

Card 1/1

VOLKOVA, Ye.V.; FOKIN, A.V.; BELIKOV, V.M.

Polymerization of tetrafluoroethylene by the action of gamma rays. Zhur.VKHO 6 no.1:113-114 '61. (MIRA 14:3)
(Ethylene) (Gamma rays) (Polymerization)

FOKIN, A.V.; SKLADNEV, A.A.; KNUNYANTS, I.L., akademik

Reactions of fluorinated olefines. Reactions between fluorinated olefins and hydrogen sulfide. Dokl.AN SSSR 138 no.5:1132-1135 Je '61. (MIRA 14:6)

(Olefins) (Hydrogen sulfide)

S/844/62/000/000/078/129
D423/D307

AUTHORS: Volkova, Ye. V., Fokin, A. V. and Sorokin, A. D.

TITLE: Radiation polymerization of trifluorochlorethylene

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 460-464

TEXT: The present work was carried out in view of the inconclusive results obtained by other workers on the radiation polymerization of F-containing unsaturated organic compounds. Experiments were carried out in stainless steel flasks. It was not possible to determine the initial velocity of polymerization but the relationship between velocity, temperature and radiation dosage was determined over linear sections of the kinetic curves corresponding to 5 - 20% conversion. It was established that polymerization takes place over a wide range of dosage and that it proceeds without a significant induction period. The power index of the velocity-dosage relationship varied from 0.36 to 0.5 for higher dosages, and the relationship was charac-

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teristic for chain reaction processes. The presence also of a radiation 'after-effect' was shown, which lasted over a period of 2 days. Between -21 and +60°C the rate of polymerization increased initially to a maximum at 35°C and then fell off, confirming the results obtained by Roberts. Over the temperature range studied, the radiation yield amounted to 27,000 mol/100 ev absorbed energy for a dose of 3×10^3 rad/hr. On increasing the temperature from 0°C to 35°C, a reduction in the molecular weight of the polymer was observed and this value was also reduced at higher doses. The experiments indicated that radiation polymerization of trifluorochlorethylene takes place by a chain process, originated by a radical mechanism. There are 5 figures.

Card 2/2

S/844/62/000/000/079/129
D423/D307

AUTHORS: Volkova, Ye. V., Fokin, A. V., Zimakov, P. V. and Belikov, V. M.

TITLE: Certain special features of the radiation polymerization of tetrafluorethylene by the action of ß and γ radiations

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 465-469

TEXT: Recent investigations are described of the radiation polymerization of TFE in the solid, liquid and vapor phases, using Co^{60} and Sr^{90} as the γ and ß sources. Irradiation in the liquid phase was carried out at 20 - 25°C using $CHCl_3$ as the solvent with a dose-rate of 11 rad/sec. Conversion of monomer increased with increase of dosage and concentration of monomer. The polymer obtained (PTFE) contained up to 2% chlorine, which was explained by the fact that the $CHCl_3$ also participates in the reaction by interaction of

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Certain special features ...

radicals and chain breakage in the polymer, resulting in low-molecular weight PTFE. Experiments in the solid state were carried out from -80 to 0°C with dosages of 1 x 10^5 and 1 x 10^4 rad. Almost total conversion of monomer occurred after 200 min at -80°C and after 20 mins at 0°C. Exceptionally large yields were obtained in comparison with similar reactions of other unsaturated compounds. The existence of a radiation after-effect was confirmed, which continued over several hours after removal of the radiation source. Experiments in the gas phase showed the presence of an induction phase extending over several hours. After the appearance of solid PTFE the reaction velocity was increased. The temperature was maintained at 20 - 25°C and a Sr^{90} β source was used with a dose-rate of 5 rad/sec. Results indicated a high tendency of TFE towards radiation polymerization with a high yield (approx. 10^6 mol/100 ev absorbed). There are 5 figures and 1 table.

Card 2/2

h1119
S/063/62/007/005/006/006
A057/A126

11.2114

AUTHORS: Volkova, Ye.V., Fokin, A.V., Sorokin, A.D., Bulygina, L.A.

TITLE: On the polymerization of vinylidenfluoride under the influence of γ-irradiation

PERIODICAL: Zhurnal vsesoyuznogo khimicheskogo obshchestva imeni D.I. Mendeleyeva, v. 7, no. 5, 1962, 593 - 594

TEXT: Radiative polymerization "in bulk" of vinylidenfluoride was investigated and the obtained results compared with previous studies carried out with tetrafluoroethylene and trifluorochlorethylene. The rate of radiative polymerization under same conditions lies in the sequence tetrafluoroethylene > vinylidenfluoride > trifluorochlorethylene and the corresponding yields per 100 ev are 10^6, 10^5, and 10^4 molecules, respectively. The polymerization occurs in all cases with a high conversion rate, practically up to 100%. The present experiments were made in 25 ml 1Kh18N9T (1Kh18N9T) steel autoclave test tubes, using a Co^{60} source with a total capacity of 5,000 g.equiv. Ra. A considerable induction period, effected by impurities (especially oxygen), was observed and, therefore, the monomer purified before use. The latter was a commercial grade of 99.8% purity. The de-

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S/063/62/007/005/006/006
A057/A126

On the polymerization of.....

peridence of the conversion upon the irradiation time was studied at 23°C with doses of 1, 5, 10, and 30 rad/sec and the rate of reaction determined from the inclination of the kinetic curves. The value of the radiation-chemical yield decreases with the dose capacity. An increase in temperature raises the rate of the radiation polymerization but for all investigated temperatures (-78, -20, 0, 23°C at 10 rad/sec) a maximum value was obtained after about 6 h. The total activation energy of radiative vinylidenfluoride polymerization was determined with 3.6 kcal/ /mole. The process occurs by a radical-chain mechanism.

SUBMITTED: May 12, 1962

Card 2/2

KNUNYANTS, I.L.; FOKIN, A.V.; KOMAROV, V.A.

Nitration of perfluoropropylene with nitrogen dioxide.
Zhur. VKHO 7 no.6:709-710 '62. (MIRA 15:12)
(Propene)
(Nitrogen oxide)

FOKIN, A.V.; SKLADNEV, A.A.; STUDNEV, Yu.N.; KNUNYANTS, I.L., akademik

Interaction of asymmetric fluoroolefins with hydrogen sulfide.
Dokl. AN SSSR 142 no.1:99-101 Ja '62. (MIRA 14:12)
(Olefins) (Hydrogen sulfide)

KNUNYANTS , I.L., adakemik; FOKIN, A.V.; BLAGOVESHCHENSKIY, V.S.; KOSYREV, Yu.M.

New interesting cases of the formation of nitroso compounds.
Dokl. AN SSSR 146 no.5:1088-1091 O '62. (MIRA 15:10)
(Nitroso compounds)

FOKIN, A. V.

PHASE I BOOK EXPLOITATION SOV/6488

Knunyants, Ivan Lyudvigovich, Academician, and Aleksandr Vasil'yevich Fokin, Professor

Pokoreniye nepristupnogo elementa (Conquest of an Inaccessible Element) Moscow, Izd-vo AN SSSR, 1963. 189 p. (Series: Akademiya nauk SSSR. Nauchno-populyarnaya seriya) Errata printed on inside of back cover. 25,000 copies printed.

Ed. of Publishing House: V. M. Tarasenko; Tech. Ed.: S. P. Golub'.

PURPOSE: This textbook is intended for chemists and engineers.

COVERAGE: The book covers the full range of fluorine chemistry and technology and is based on Soviet and Western sources. The text includes: properties of fluorocarbons; fluorinated hydrocarbons, e.g., fluorinated olefins which have high thermal stability and chemical resistance; esters of dibasic

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perfluorocarboxylic acids which are used in the preparation of stable lubricants and in synthetic rubber; preparation, properties, and applications of fluorine-containing plastics [teflon, teflon-100, poly(vinylidene fluoride)]; their radiation polymerization; fluorine containing elastomers used in supersonic aircraft and jet engines; freons; and other applications. The fifth chapter is devoted to lubricants and hydraulic fluids with high thermal and oxidation stability, which can be used under severe conditions and in systems with aggressive media. It is noted that chlorofluorocarbon oils lower the friction coefficient of rubbing surfaces made of the same metal under heavy loads and at high temperatures. Certain Soviet oils, greases, and hydraulic fluids are also described. Tabulated data are given for: 4-F, 3-F, 3-OK, 10-OK, 20-F, Summer No.5, Winter No.8, UPI, Fluid No.12, manometric fluid, and balancing fluid. Only KS, UPI, and Summer No.5 are insoluble in ammonia and amines. In describing esters of dicarboxylic acids and fluorinated

alcohols, the author mentions the applicability of such lubricants for submarines to avoid a detectable oil film on the water surface (the ONR research is quoted). Modern lubricants are already in use in jet engines and other engines working at high temperatures. The author points out the importance of fluorine compounds in rocketry, aviation, astronautics, atomic energy, and industry. The last chapter is devoted to fluorine organic compounds used for: the improvement of light fastness of dyes (benzotrifluoride, fluorobenzene, trifluoromethylbenzene); the preparation of chemotherapeutic compounds; and the preparation of a class of toxic compounds (fluoroacetates). These compounds belong to esters of the general type $F(CH_2)_n COOR$, fluoroalcohols, and fluoroacetamides with their derivatives. Fluorophosphates are mentioned as CW compounds (e.g., DFP-3, Sarin, Soman) which caused a change in anti-CW methods. No personalities are mentioned. There are no references.

KNUNYANTS, I. L.; FOKIN, A. V.; DYATKIN, B. L.; KOMAROV, V. A.

Action of nitrogen dioxide on perfluoroisobutylene. Zhur. VKHO 8 no.2:239-240 '63. (MIRA 16:4)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

(Nitrogen oxides) (Propene)

FOKIN, A.V.; STUDNEV, Yu.N.; SKLADNEV, A.A.

Reactions of 1,1-difluoropolyfluoralkylmercaptans with phosphorus acid derivatives. Zhur.ob.khim. 33 no.10:3366-3369 O '63. (MIRA 16:11)

FOKIN, A.V.; SKLADNEV, A.A.; KOMAROV, V.A.

Acylating action of mixed anhydrides of fluorine-containing carboxylic acids. Zhur.ob.khim. 33 no.10:3271-3274 O '63. (MIRA 16:11)

L 53933-65 EWT(m)/EPF(c)/EPR/EWP(j)/EWA(c) Pc-4/Pr-4/Ps-4 RPL WW/
ACCESSION NR: AP5013225 JW/RM UR/0063/65/010/003/0354/0355
542.958.1 + 547.32

AUTHOR: Fokin, A.V.; Komarov, V.A.; Borochkin, I.N.; Davydova, S.M.

TITLE: Nitration of 1,1,1-trifluoropropylene by nitrogen dioxide and a study of the nitration products

SOURCE: Vsesoyuznoye khimicheskoye obshchestvo. Zhurnal, v. 10, no. 3, 1965, 354-355

TOPIC TAGS: nitration, olefin, nitrogen oxide, nitration product

ABSTRACT: The nitration of olefins having the general formula $Rf-CH=CH_2$ (where Rf = CF_3, $C_3F_7-CH_2-CF_2$) was studied. Because the individual compounds cannot be separated by ordinary fractionation of the reaction mixture, the reaction products were treated with water, the reaction mixture was extracted with ethyl ether, and the ether solution was dried and fractionated. 3-Nitro-1,1,1-trifluoro-2-propanol (I, 80% yield) and 2-nitro-1,1,1-trifluoro-2-propanol nitrate (II, 10% yield) were obtained. Compound II was also obtained by treating I with a nitrating mixture:

$$CF_3-\underset{OH}{CH}-\underset{NO_2}{CH_2} \xrightarrow[H_2SO_4]{HNO_3} CF_3-\underset{ONO_2}{CH}-\underset{NO_2}{CH_2}$$

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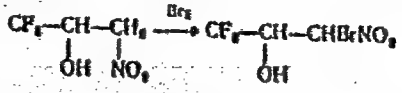
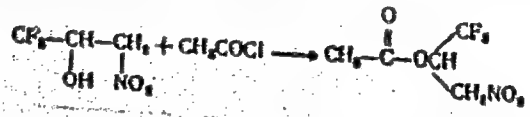
L 53933-65
ACCESSION NR: AP5016225

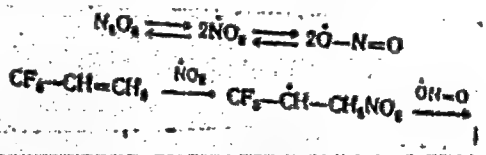
Bromination of I in an alkaline medium produced 3-nitro-3-bromo-1, 1, 1-trifluoro-2-propanol:



and the reaction of I with acetyl chloride yielded 1, 1, 1-trifluoro-3-nitro-2-propanol:

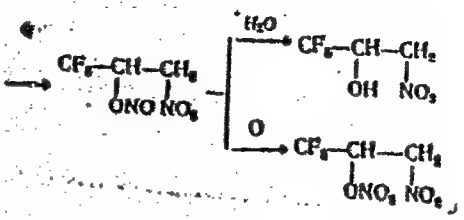


On the basis of the products obtained, the nitration of 1, 1, 1-trifluoropropylene may be represented as follows:



Card 2/3

ACCESSION NR: AP5016225



Orig. art. has: 5 formulas.

ASSOCIATION: none

SUBMITTED: 28Aug64 ENCL: 00 SUB CODE: OC

NO REF SOV: 000 OTHER: 004

Card 3/3

L 35524-65 EWT(m)/EPF(c)/EPR/EWP(j)/EWP(t)/EWP(b)/EWA(c) Pc-4 Pr-4/Pu-4 IJP(c)/
RPL JD/AW/RM

ACCESSION NR: AP5008203 S/0296/65/000/005/0071/0071

AUTHORS: Pokin, A. V.; Skladnev, A. A.; Kvashan, Z. N.; Studnev, Yu. N. 35

TITLE: A method for producing sulfur-bearing polyfluororganic compounds. Class 39, No. 168882

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 5, 1965, 71

TOPIC TAGS: sulfur, fluorine, organic derivative, olefin

ABSTRACT: This Author Certificate presents a method for obtaining sulfur-bearing polyfluororganic compounds. To expand the raw-material base, fluoroolefin is made to react with hydrogen sulfide in the presence of [illegible]

ASSOCIATION: none

SUBMITTED: 12Dec61 ENCL: 00 SUB CODE: OC

NO REF SOV: 000 OTHER: 000

Card 1/1

LIMAR', T.F.; UVAROVA, K.A.; BULACHEVA, A.F.; SOYUZOV, A.S.; BEDNOVA, I.N.; MAKOVSKAYA, E.B.; SOLOMEINA, G.I.; DOLMATOV, Yu.D.; BOBYRENKO, Yu. Ya.; KOGAN, F.I.; KOVALENKO, P.N.; IVANOVA, Z.I.; FOKIN, A.V.; KOMAROV, V.A.; SOROCHKIN, I.N.; DAVYDOVA, S.M.; RAVDEL', A.A.; GORELIK, G.N.; DAUKSHAS, V.K. [Dauksas, V.]; PIKUNAYTE, L.A. [Pikunaite, L.]; SHARIPOV, A.Kh.; SHABALIN, I.I.; STEPNOVA, G.M.; SHMIDT, Ye.V.; DUBOV, S.S.; STRUKOV, O.G.

Scientific research papers of the members of the All-Union Mendeleev Chemical Society (brief information). Zhur. VKHO 10 no.3:350-360 '65. (MIRA 18:8)

1. Donetskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv (for Limar', Uvarova, Bulacheva). 2. Ural'skiy nauchno-issledovatel'skiy khimicheskiy institut (for Shubin, Bednova, Makovskaya, Solomeina). 3. Chelyabinskiy filial Gosudarstvennogo nauchno-issledovatel'skogo i proyektnogo instituta mineral'nykh pigmentov (Dolmatov, Bobyrenko). 4. Rostovskiy-na-Donu universitet (for Kogan, Kovalenko, Ivanova). 5. Leningradskiy tekhnologicheskiy institut imeni Lensoveta i Institut mineral'nykh pigmentov (for Ravdel', Gorelik). 6. Vil'nyusskiy gosudarstvennyy universitet imeni Kpsukasa (for Dauksha, Pikunayte). Nauchno-issledovatel'skiy institut neftekhimicheskikh proizvodstv (for Sharipov, Shabalin). 8. Tomskiy politekhnicheskiy institut imeni Kirova (for Stepnova, Shmidt).

L 18545-66
ACC NR: AP6002180 (N) SOURCE CODE: UR/0146/65/008/006/0108/0113

AUTHOR: Vinogradov, A. A.; Fokin, A. V.

32
B

ORG: Odessa Higher Marine-Engineering School (Odesskoye vyssheye inzhenernoye morskoye uchilishche)

TITLE: Centrifugal tangential angular-velocity sensor 10, 44, 55

SOURCE: IVUZ. Priborostroyeniye, v. 8, no. 6, 1965, 108-113

TOPIC TAGS: sensor, angular velocity sensor, automatic control

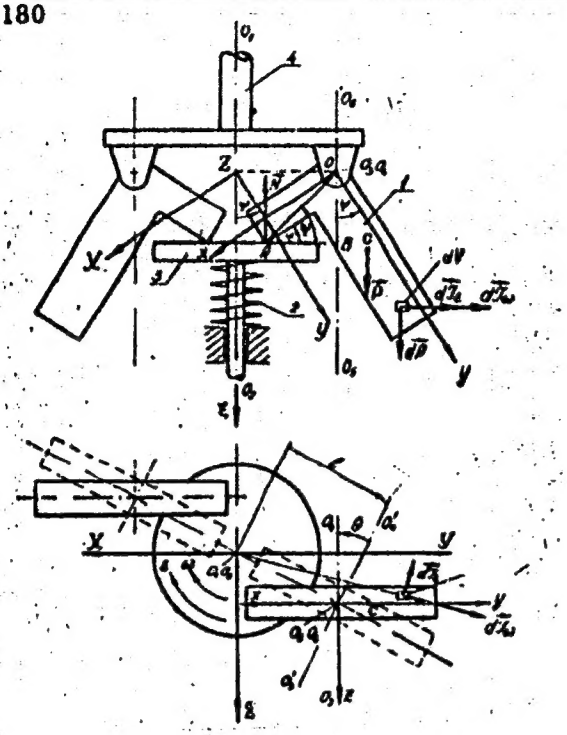
ABSTRACT: The development is reported of a new sensor (see figure below) which measures simultaneously both the angular velocity and the angular acceleration. Essentially, this is the classical Watt regulator in which axis $O_3 O_4$ of suspension of weight 1 is turned, together with the weight, about axis $O_5 O_6$ (which is parallel to $O_1 O_2$) by an angle θ ; this design modification permits measuring both the velocity and the acceleration. Differential equations for the dynamics of weight 1 and disk 3 are set up and transformed which results in a single second-order differential equation describing the motion of the entire centrifugal tangential sensor. The sensor is intended for turboprop, turbojet, and diesel engines. Orig. art. has: 1 figure, 30 formulas, and 1 table.

SUB CODE: 13 / SUBM DATE: 11Jul64 / ORIG REF: 005

Card 1/2 UDC: 62-552

L 18545-66

ACC NR: AP6002180



Card 2/2 mys

L 16471-66 EWT(m)/ETC(f)/EPF(n)-2/EWG(m)/EWP(j) WW/DM/RM
ACC NR: AP6005532 (A) SOURCE CODE: UR/0089/66/020/001/0053/0054

AUTHOR: Fokin, A. V.; Kuzicheva, V. S.; Fomin, Yu. K.

43
40
8

ORG: none

TITLE: Possibilities of "oil" flotation for reprocessing liquid radioactive wastes

SOURCE: Atomnaya energiya, v. 20, no. 1, 1966, 53-54

19,55

TOPIC TAGS: flotation, radioactive waste disposal, radioisotope, nuclear engineering, solvent extraction

ABSTRACT: "Oil" flotation may be used at ordinary temperatures with comparatively simple equipment for extracting the solid phase from waste radioactive pulp and concentrating it together with trapped radioisotopes in a layer of organic matter which is immiscible with water. The suspended particles are treated with various water-repellent surface-active sorbents, (e. g. salts of fatty acids). Up to 90--95% of the radioactive isotopes may be removed from the water in a single stage. It is recommended that nonflammable and low-boiling solvents of the carbon tetrachloride type should be used in quantities of 30-50 ml per gram of solid residue to

Card 1/2 UDC: 621.039.722 + 621.928.5

2

L 16471-66
ACC NR: AP6005532

3

be extracted. In some cases organic monomers may be used for the "oil", and the layer of extracted material may be directly converted to a solid plastic by bulk or suspension polymerization. It was found that preparations based on polystyrene and various polyester acids may be used for burial of the radioactive isotopes.

SUB CODE: 18/ SUBM DATE: 15Oct65/ ORIG REF: 000/ OTH REF: 000

Card 2/2 mc

ACC NR: AT6034055 (A) SOURCE CODE: UR/0000/66/000/000/0109/0114

AUTHOR: Volkova, Ye. V.; Zimakov, P. V.; Fokin, A. V.; Sorokin, A. D.; Belikov, V. M.; Bulygian, L. A.; Skobina, A. I.; Krasnousov, L. A.

ORG: none

TITLE: Radiation polymerization of fluoroolefins

SOURCE: Simpozium po radiatsionnoy khimii polimerov. Moscow, 1964. Radiatsionnaya khimiya polimerov (Radiation chemistry of polymers); doklady simpoziuma. Moscow, Izd-vo Nauka, 1966, 109-114

TOPIC TAGS: radiation polymerization, halogenated organic compound, polymerization kinetics, reaction mechanism

ABSTRACT: Results of the authors' previously published studies on radiation polymerization of unsaturated fluorine-containing compounds are reviewed, explaining certain characteristics of the process associated with the effects of the electronegative fluorine atom, heterogeneous process conditions and radiolysis products. Tetrafluoroethylene is distinguished by its rapid polymerization under ionizing irradiation, with complete monomer conversion in three hours at -78°C in liquid phase polymerization with 10 rad/sec radiation, and in ten minutes at +20°C. The yield of 7×10^6 molec/100ev is the highest known for radiation chemical reactions.

Card 1/2